

Association of Cardiovascular Surgeons of Ukraine
National M.M. Amosov Institute of Cardiovascular Surgery National Academy
of Medical Sciences of Ukraine
Shupyk National Healthcare University of Ukraine



UKRAINIAN JOURNAL OF **CARDIO- VASCULAR SURGERY**

УКРАЇНСЬКИЙ ЖУРНАЛ
СЕРЦЕВО-СУДИННОЇ ХІРУРГІЇ

Scientific edition

Nº 4 (edition 45) 2021

The founders:

National M. M. Amosov Institute of
Cardiovascular Surgery National
Academy of Medical Sciences of
Ukraine

Association of Cardiovascular
Surgeons of Ukraine

Shupyk National Healthcare
University of Ukraine

Publisher Professional Edition
Eastern Europe

Editorial Board:

A. V. Rudenko, deputy
chief editor (Kyiv)
L. V. Kulyk, deputy
chief editor (Lviv)
O. D. Babliak (Kyiv)
J. Bialkowski (Poland)
R. M. Vitovsky (Kyiv)
I. M. Yemets (Kyiv)
A. K. Kurkevych (Kyiv)
V. B. Maksimenko (Kyiv)

W. M. Novick (USA)
O. S. Nikonenko (Zaporizhzhia)
I. V. Polivenok (Kharkiv)
O. V. Rybakova (Kyiv)
K. V. Rudenko (Kyiv)
S. O. Siromakha (Kyiv)
M. Yu. Sokolov (Kyiv)
O. M. Trembovetska (Kyiv)
P. Ferrazzi (Italy)
A. Weymann (Germany)

Chief editor:

V.V. Lazoryshynets,
Member of the National Academy
of Medical Sciences of Ukraine,
Corresponding Member
of the National Academy
of Sciences of Ukraine, prof.

Editorial Committee:

Ye. V. Aksenov (Kyiv)
M. Yu. Atamanuik (Kyiv)
O. A. Beregovyy (Kyiv)
N. M. Verych (Kyiv)
V. K. Gryn (Kyiv)
S. O. Dykucha (Kyiv)
O. M. Dovgan (Kyiv)
V. A. Zhovnir (Kyiv)
V. P. Zakharova (Kyiv)
Yu. I. Karpenko (Odesa)
A. I. Klantsa (Khmelnitsky)
V. I. Kravchenko (Kyiv)
I. M. Kravchenko (Kyiv)

O. A. Krykunov (Kyiv)
S. V. Maksimenko (Dnipro)
V. G. Mishalov (Kyiv)
Ye. A. Nastenko (Kyiv)
Yu. V. Panichkin (Kyiv)
V. V. Popov (Kyiv)
N. M. Rudenko (Kyiv)
O. V. Rudenko (Kyiv)
L. L. Sitar (Kyiv)
R. I. Soskyda (Uzhgorod)
O. S. Styrchinskyi (Kyiv)
Ya. P. Truba (Kyiv)
S. M. Furkalo (Kyiv)

Ukrainian Journal of Cardiovascular Surgery

The registration certificate KB No. 24932-14872ПР was issued on August 19, 2021 by the Ministry of Justice of Ukraine.

Edited under title "Cardiovascular Surgery Herald" since May 2019 (the registration certificate KB No. 20730-10530 ПР was given in 08.05.2014 by The State Registration Service of Ukraine).

Edited under title "The Yearbook of Scientific Works of Ukrainian Society of Cardiovascular Surgery" since 2014, certified by the Highest Attestation Commission (approved by the decision of the Presidium of the HAC of Ukraine of April 14, 2010 No. 1-05 / 3 "On adding of periodical scientific professional editions to the new list of scientific professional editions of Ukraine").

Recommended by the Scientific Board of the National M. M. Amosov Institute of Cardiovascular Surgery National Academy of Medical Science of Ukraine. Protocol No. 20 dated December 07, 2021.

The Journal was included to the list of Ukrainian Scientific Professional Editions in which the results of doctoral thesis for PhD achievement can be published, category B (B) (approved by the order of The Ministry of Education and Sciences of Ukraine dated March 17, 2020 No. 409).

All materials are published in the source language.

All submitted articles are undergoing internal and external double-blind peer review.

The journal is free of charge.

Electronic version is presented at www.cvs.org.ua, as well as at the web-site of the Vernadsky National Library in department of «Scientific periodical press of Ukraine».

Prepress preparation of edition: N.G. Gnoyevaya.

On-line: S. V. Rysin.

Address of the editorial office: 6 Amosov Street, Kyiv 03038

e-mail: cvs-herald@ukr.net

Signed for print 22.12.2021

Offset print. Size 70x100/16. Cond. Print sheets. 23,0

Circulation 200 samples.

Order No. _____

Publisher Professional Edition Eastern Europe

Printer LLC Saiur Group

8 Novovokzalna Street, Kyiv 03038

ISSN 2664-5963 (Print)
ISSN 2664-5971 (Online)

© National M.M. Amosov Institute of Cardiovascular Surgery National Academy of Medical Sciences of Ukraine
© Association of Cardiovascular Surgeons of Ukraine
© Shupyk National Healthcare University of Ukraine
© Publisher Professional Edition Eastern Europe